

CLAIMS

What is claimed is:

1. A multi-package module comprising stacked lower and upper packages, each said package including a die attached to a substrate, wherein the second package is inverted, wherein the upper and lower substrates are interconnected by wire bonding, and wherein at least one said package comprises a stacked die package.
2. The multi-package module of claim 1 wherein the lower package comprises a stacked die package.
3. The multi-package module of claim 1 wherein each of the lower package and the upper package comprises a stacked die package.
4. The multi-package module of claim 1 wherein the upper package comprises a stacked die package.
5. The multi-package module of claim 1 wherein adjacent stacked die in the stacked die package are separated by a spacer.
6. The multi-package module of claim 1, further comprising a heat spreader over the second package.
7. The multi-package module of claim 1, further comprising an additional package stacked over the inverted second package.
8. The multi-package module of claim 7 wherein the additional package is a land grid array package.
9. The multi-package module of claim 7 wherein the additional package is an inverted land grid array package.
10. The multi-package module of claim 7 wherein the additional package is a ball grid array package.

11. The multi-package module of claim 7 wherein the additional package is a flip chip package.
12. A method for making a multi-package module, comprising
providing a stacked die first package,
providing a second package,
inverting the second package and stacking the second package over the first package,
and
forming electrical interconnects between the first package and the second package by wire bonding.
13. The method of claim 12 wherein providing a stacked die first package comprises testing stacked die packages for a performance and reliability requirement, and identifying a package that meets the requirement as a said first package.
14. The method of claim 12 wherein providing a second package comprises testing packages for a performance and reliability requirement, and identifying a package that meets the requirement as a said second package.
15. The method of claim 12 wherein providing a stacked die first package comprises providing an unsingulated strip of stacked die packages.
16. The method of claim 12 wherein providing a stacked die first package comprises providing a package comprising a first die affixed to a first package substrate, a second die affixed over the first die, and wire bond interconnects between said first and second die and said substrate.
17. The method of claim 16 wherein providing a stacked die first package comprises providing a package further comprising a spacer interposed between said first and said second die.
18. The method of claim 12, further comprising providing a heat spreader.
19. The method of claim 12, further comprising attaching second-level interconnect balls onto the first package substrate.

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20. The method of claim 12, further comprising encapsulating the stacked packages on the module in a molding compound.
21. A mobile device comprising the multi-package module of claim 1.
22. A computer comprising the multi-package module of claim 1.